University of California
College of Agriculture
Agricultural Experiment Station
Berkeley, California

SEASONAL LABOR NEEDS FOR CALIFORNIA CROPS

CONTRA COSTA COUNTY

Progress Report No. 7

by

R. L. Adams

Preliminary -- Subject to Correction

September, 1936

Contribution from the
Giannini Foundation of Agricultural Economics
Mimeographed Report No. 53

(Farm Labor Survey -- January-June, 1936)

Progress Report #7 January, 1936

Seasonal Labor Needs for California Crops

Contra Costa County (Excluding Delta Lands)

Scope of Presentation.-- The following considerations govern the presentation of this progress report:

1. The data are confined to the area indicated above.

2. The data are confined solely to crops, livestock needs being ignored.

3. The findings apply only to occasional or seasonal labor requirements as distinguished from labor contributed by farm operators and by workers employed on a year-round or regular basis of employment.

4. The presentation includes the so-called migratory, transient, or roving workers which comprise an important source of help needed in connection with certain tasks and at "peak" times which seasonally arise in connection with many field, truck, and fruit crops commercially produced in California.

5. This report is confined to California's need for seasonal agricultural workers because of the more pressing problems liable to arise in connection therewith. A later study is planned which will deal with other kinds of labor involved in the production of California's many crops.

Brief Description of the Area Under Review.-- Contra Costa County is one of the central coast counties of California, bordering on San Francisco and San Pablo bays, and lying about 15 miles northeast of the city of San Francisco. It is bounded on the north by the mouth of the Sacramento and San Joaquin rivers, and on the south by a range of rough hills which separate it from Alameda County. The San Francisco and San Pablo bays form the western boundary, and on the east it is bounded by the plains of the lower San Joaquin Valley in San Joaquin County. Mt. Diablo, a prominent landmark, is situated in the central portion of the county. A range of hills extends eastward from Mt. Diablo. Much of the total area is rolling and even hilly in character.

There are five main farming districts devoted to intensive crops. One is on the eastern portion, around the towns of Brentwood, Byron, Oakley, and Antioch, and is about 8 miles by 20 miles in extent. Another area in the vicinity of Concord includes the Clayton and Ignacio valleys, an irregular area of about 6 by 10 miles in extent, in the north central portion. A third area extends along the San Ramon Valley from Walnut Creek to the Alameda county line just beyond San Ramon, an area about 12 miles in length and varying from one-half to about 2 miles in width. A fourth area lies in Alhambra Valley in the northern portion near Martinez, and is approximately one-half mile wide and 5 miles long. A fifth area, about 3 by 4 miles in extent, lies in the San Pablo and Pinole valleys in the northwest part of the county. There are also considerable acreages of orchard and truck crops in the Moraga and Lafayette districts near the towns of the same names. Grain and hay are raised generally over the county on much of the hilly land.

A portion of the county lies in the delta of the Sacramento and San Joaquin rivers, but as the delta is to be considered separately as a unit by itself, this portion of the county is excluded from this progress report.

The county contains a total of 456,960 acres, of which 207,621 acres are classed as crop land by the 1935 Census. This crop land for 1934 is further classified by the Census as follows:

	Acres
Crop land harvested	125,624
Crop failure	6,121
Crop land idle or in fallow	19,626
Plowable pasture	56,250
Total	207,621

(The above figures include the delta.)

Crop acreages during 1935, exclusive of the delta section, are estimated to have been as follows:

	Acres
Field crops[1]	65,705
Vegetable crops[2]	9,217
Orchards (including grapes) bearing[3]	32,816
Total	107,738

Most of the level or valley soils are at elevations under 300 feet, and these are the areas most intensively farmed to fruit and vegetable crops. Grain and hay are raised on hills up to elevations of 1,000 feet or more. Several soil series are represented. With the exception of the sandy soils near Oakley, most of the soil is of heavier textures, ranging from loams to clay loams, usually 6 feet or more in depth.

Crops, Acreages, and Production.-- The basis used in calculating occasional or seasonal need for labor, in addition to that furnished by farm operators and regularly employed workers appears in table 1. This table has been compiled from various sources, and is believed to represent the present conditions in the county with a fair degree of accuracy.

1/Field crop acreages and production are based on 1935 census figures (1934 acreages), adjusted to 1935 conditions where possible.

2/Vegetable acreages are based on Federal-State Crop Reporting Service, Sacramento, California, "Acreage of Specific Vegetable Crops by Counties," by C. M. Schiller. 1934 with some revisions to represent 1935 conditions.

3/Acreages in orchard and vineyard were obtained from V. G. Stevens, Agricultural Commissioner, Contra Costa County, Martinez, California.

TABLE 1

Basis for Calculating Seasonal Labor Requirements
Contra Costa County, excluding delta lands

Crops	Acreage	Production
Field crops:		
Sugar beets	1,936	23,200 tons
Hay (other than alfalfa)	29,868	35,473 tons
Hay - alfalfa	5,901	20,146 tons
Barley)		
Wheat)	28,000	700,000 bushels
Oats)		
Vegetable crops:		
Cabbage	50	--
Melons (Honeydew)	450	1,500 tons
Cauliflower	50	--
Cucumbers, pickling	170	850 tons
market	50	--
Garlic	10	--
Lettuce, fall	50	7,500 crates
Peas, spring	1,000	120,000 hampers
Spinach	138	139½ tons (only 29 acres harvested)
Strawberries	55	40,000 crates
Tomatoes, canning	5,624	25,281 tons
market	1,570	5,100 tons
Fruit crops:		
Almonds	4,500	675 tons
Apples	550	1,100 tons
Apricots	4,517	14,930 tons (8,918 tons canned (4,400 tons dried (1,612 tons shipped
Cherries	285	850 tons
Kadota figs	200	400 tons
Raisin and table grapes	300)	
Wine grapes	5,400)	11,400 tons
Olives	47	--
Nectarines	253	707 tons (413 tons canned (132 tons dried (162 tons shipped
Peaches - clingstone	231	755 tons (647 tons canned (108 tons dried
freestone	1,370	2,942 tons (182 tons canned (2,200 tons dried (560 tons shipped
Pears - Bartlett	4,370)	
other varieties	331)	7,351 tons (3,666 tons shipped (1,870 tons canned (1,815 tons dried
Plums	130	very light crop
Prunes	1,832	2,000 tons (dried weight)
Walnuts	8,500	2,500 tons

Operations Requiring Seasonal Labor and Times of Need.-- Farm operations requiring the use of seasonal or occasional labor for the various crops raised in Contra Costa County are indicated in table 2. This tabulation does not include the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Needs by Crops
Contra Costa County

Crop	Operation	Time of need
Field crops: Alfalfa	Mowing -- (1,000 acres 2 times 4,900 acres 6 times) 50 per cent by seasonal workers	April -- 5,900 acres May -- 4,100 acres June -- 4,100 acres July -- 4,100 acres
	Raking -- 50 per cent by seasonal workers	August -- 4,600 acres September -- 4,600 acres
	Bunching -- 50 per cent by seasonal workers	October -- 4,100 acres
	Baling -- 50 per cent of crop = 10,000 tons	May to October inclusive -- 1,700 tons each month
	Threshing -- (about 1,000 acres)	August -- 50 per cent of acreage September -- 50 per cent of acreage
Grain Barley Wheat Oats	Harvesting by combine -- 40 per cent by seasonal workers	June -- 15 per cent of acreage) on July -- 50 per cent of acreage) 25,000 August -- 30 per cent of acreage) acres September -- 5 per cent of acreage)
	Piling bundles	June -- 50 per cent) on 3,000 July -- 50 per cent) acres
	Threshing -- (stationary) 60 per cent by seasonal workers	July -- 80 per cent) on 3,000 August -- 20 per cent) acres
Hay (other than alfalfa)	Mowing -- 50 per cent by seasonal workers	April -- 10 per cent of acreage May -- 90 per cent of acreage
	Raking -- 50 per cent by seasonal workers	April -- 10 per cent of acreage May -- 90 per cent of acreage

Table continued on next page.

Table 2 continued.

Crop	Operation	Time of need
Field crops:		
Hay (other than alfalfa) (cont'd.)	Shocking -- 50 per cent by seasonal workers	May -- 100 per cent of acreage
	Trimming -- 50 per cent by seasonal workers	May -- 100 per cent of acreage
	Baling -- 75 per cent of tonnage	May -- 5 per cent of tonnage baled June -- 30 per cent of tonnage baled July -- 30 per cent of tonnage baled August -- 30 per cent of tonnage baled September -- 5 per cent of tonnage baled
Sugar beets	Thinning	February 1-28 -- one-third of acreage March 1-31 -- one-third of acreage April 1-30 -- one-third of acreage
	Hoeing -- 50 per cent of acreage	May 1-31 -- 50 per cent of acreage only
	Topping and loading	July 15-31 -- 16 per cent of crop August 1-31 -- 33 per cent of crop September 1-30 -- 33 per cent of crop October 1-15 -- 16 per cent of crop
Vegetable crops:		
Cabbage -- use of seasonal labor inconsequential and hence ignored.		
Melons, honeydew	Picking	August 24-31 -- 12 per cent of crop September 1-30 -- 22 per cent of crop October 1-31 -- 64 per cent of crop November -- 2 per cent of crop
Cauliflower -- use of seasonal labor inconsequential and hence ignored.		
Cucumbers, pickling	Hoeing and thinning	May 15-30 -- 50 per cent of acreage June 1-15 -- 50 per cent of acreage
	Picking	July 15-31 -- continuously August 1-30 -- continuously September 1-18 -- continuously
Garlic -- use of seasonal labor inconsequential and hence ignored.		
Lettuce	Thinning	September -- 50 per cent of acreage October -- 50 per cent of acreage
	Hoeing	October -- 50 per cent of acreage November -- 50 per cent of acreage
	Cutting	November -- 61 per cent of acreage December -- 33 per cent of acreage January -- 6 per cent of acreage

Table continued on next page.

Table 2 continued.

Crop	Operation	Time of need
Vegetable crops:		
Onions -- use of seasonal labor inconsequential and hence ignored.		
Peas	Picking	April 15-31 -- 33 per cent of crop May 1-15 -- 66 per cent of crop
Spinach	Picking and putting in crates	March 15-31 -- all of crop
Strawberries	Picking	May and June
Tomatoes	Transplanting to beds	March 1-15 -- all of job
	Setting out in field	April 15-30 -- 50 per cent of acreage May 1-15 -- 50 per cent of acreage
	Replanting misses	May 1-31
	Hoeing	May -- 33 per cent of job June -- 33 per cent of job July -- 33 per cent of job
	Picking -- canning	August 20-31 -- 10 per cent of crop September -- 40 per cent of crop October -- 50 per cent of crop
	-- market	September -- 3 per cent of crop October -- 67 per cent of crop November -- 30 per cent of crop
	Cutting vines -- on 50 per cent of acreage	November 1-30 -- 75 per cent of job December -- 25 per cent of job
Fruit crops:		
Almonds	Knocking	August 15-31 -- 38 per cent of acreage September 1-30 -- 50 per cent of acreage October 1-31 -- 12 per cent of acreage (peak September 1)
	Hulling	August 15-31 -- 38 per cent of acreage September 1-30 -- 50 per cent of acreage October 1-31 -- 12 per cent of acreage (peak September 1)
Apricots	Pruning	November 1-30 -- 40 per cent of acreage December 1-31 -- 40 per cent of acreage January 1-15 -- 20 per cent of acreage
	Brush piling	November 1-30 -- 40 per cent of acreage December 1-31 -- 40 per cent of acreage January 1-15 -- 20 per cent of acreage

Table continued on next page.

Table 2 continued.

Crop	Operation	Time of need
Fruit crops: Apricots (continued)	Thinning	April 10-30 -- 12½ per cent of acreage May 1-20 -- 12½ per cent of acreage
	Picking	June 1-15 -- 10 per cent of crop June 15-30 -- 30 per cent of crop July 1-15 -- 55 per cent of crop July 15-31 -- 5 per cent of crop
	Cutting for drying	June 1-15 -- 10 per cent of tonnage dried June 15-30 -- 30 per cent of tonnage dried July 1-15 -- 55 per cent of tonnage dried July 15-31 -- 5 per cent of tonnage dried
	Other dry-yard work	June 1-15 -- 10 per cent of job June 15-30 -- 30 per cent of job July 1-15 -- 55 per cent of job July 15-31 -- 5 per cent of job
Apples	Picking -- 50 per cent by seasonal workers	July -- 10 per cent of crop August -- 20 per cent of crop September -- 40 per cent of crop October -- 30 per cent of crop
Cherries	Picking	May 1-31 -- 50 per cent of crop June 1-10 -- 50 per cent of crop
Kadota figs	Pruning	January -- 75 per cent of acreage February -- 25 per cent of acreage
	Brush hauling	January -- 75 per cent of acreage February -- 25 per cent of acreage
	Picking	August 17-31 -- continuously September 1-30 -- continuously October 1-31 -- continuously
	Packing for shipment	August 17-31 -- continuously September 1-30 -- continuously October 1-31 -- continuously
Grapes (wine variety)	Picking	August -- 4 per cent of crop September 1-30 -- 58 per cent of crop October 1-15 -- 38 per cent of crop
Peaches, freestone and clingstone (include nectarines)	Pruning	November -- one-third of acreage December -- one-third of acreage January -- one-third of acreage

Table continued on next page.

Table 2 continued.

Crop	Operation	Time of need
Fruit crops: Peaches (continued)	Thinning	May 15-31 -- 75 per cent of acreage June 1-15 -- 25 per cent of acreage (mainly nectarines)
	Picking and sorting	July 15-31 -- 20 per cent of crop August 1-15 -- 50 per cent of crop August 15-31 -- 20 per cent of crop September 1-15 -- 10 per cent of crop
	Drying	July 15-30 -- 20 per cent of crop August 1-15 -- 50 per cent of crop August 15-31 -- 20 per cent of crop September 1-15 -- 10 per cent of crop
Pears	Pruning	November -- 25 per cent of acreage December -- 25 per cent of acreage January -- 25 per cent of acreage February -- 25 per cent of acreage
	Hoeing and suckering	April 15-30 -- 40 per cent of acreage May 1-31 -- 40 per cent of acreage June 1-15 -- 20 per cent of acreage
	Picking	July 15-31 -- 10 per cent of crop August 1-31 -- 87 per cent of crop September 1-6 -- 3 per cent of crop
	Cutting for drying	August -- 75 per cent of tonnage dried September -- 25 per cent of tonnage dried
Plums	Picking	July -- no seasonal help in 1935 August -- crop was very light.
Prunes	Pruning	November -- 25 per cent of acreage December -- 25 per cent of acreage January -- 25 per cent of acreage February -- 25 per cent of acreage
	Picking up	August 15-31 -- 10 per cent of crop September 1-30 -- 80 per cent of crop October 1-15 -- 10 per cent of crop
Walnuts	Knocking and picking up	September 15-30 -- 20 per cent of crop October 1-31 -- 80 per cent of crop

Findings of Seasonal Labor Needs.-- Details and summaries of seasonal labor requirements of Contra Costa County agriculture are presented in table 3. The "size of job" are figures drawn from table 1 in terms of either acreage or output in tons, crates, boxes, or whatever unit is commonly used. The "output per man-day" is an average figure for the entire acreage or output figured in packed crates, hampers, or boxes (in case of fruits and vegetables). If the work is of a nature that requires a crew different members of which perform different tasks (such as cutting, trimming, loading, and hauling cauliflower; trimming and crating celery, etc.), then the average shown is per man based on the entire crew. Length of day is 9 hours, November to February; 10 hours, March to October, unless otherwise stated. Wide variations in output occur between farm and farm, field and field, and season and seaon, because of differences in soil types, climatic conditions, weeds, yields, and other factors influencing the amount of work that a laborer can perform in a given day. Moreover, the basis of output is a mature, experienced male worker, without reference to use of women, children, and more or less inexperienced help that is sometimes used in connection with certain of the tasks requiring use of seasonal workers. The column headed "available days" reflects (a) limitations set from the period within which the work must be performed because of the nature of the task, such as transplanting, thinning, weeding, and cutting, and (b) available days as determined by weather conditions, inclement weather reducing the number of days when a required task can be performed. The "required number of individuals" is given in terms of workers as noted above in connection with "output per man-day."

It is probable that the estimated number of workers required, as recorded in table 3, will often be too low, for the reason that "peaks" frequently occur, during which an unusually large proportion of the job is done in a very short period. This would naturally require a much greater number of workers than when the work is spread over a longer period, even though the total amount of labor (in man-days) remains the same.

TABLE 3

Seasonal Labor Needs -- Contra Costa County -- by Months and Tasks

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
January	Lettuce: Cutting	450 crates	30 packed crates	15	2	8 (for 2 days)
	Apricots: Pruning	900 acres	0.25 acre	3,600	19	184
	Brush piling and disposal	900 acres	2 acres	450	19	24
	Peaches and nectarines: Pruning	620 acres	0.25 acre	2,480	19	130
	Brush piling and disposal	620 acres	3 acres	207	19	11
	Pears: Pruning	1,175 acres	0.25 acre	4,700	19	248
	Brush piling and disposal	1,175 acres	3 acres	392	19	21
	Prunes: Pruning	450 acres	0.25 acre	1,800	19	95
	Brush piling and disposal	450 acres	3 acres	150	19	8
	Figs, Kadota: Pruning	150 acres	0.5 acre	300	19	16
	Hauling brush†	150 acres	1 acre	150	19	8
	Totals			14,244	19	750 man-months
February	Sugar beets: Thinning	655 acres	0.5 acre	1,310	21	62
	Pears: Pruning	1,175 acres	0.25 acre	4,700	21	224
	Brush disposal	1,175 acres	3 acres	392	21	19
	Prunes: Pruning	450 acres	0.25 acre	1,800	21	85
	Brush disposal	450 acres	3 acres	150	21	7
	Figs, Kadota: Pruning	50 acres	0.5 acre	100	21	5
	Hauling brush†	50 acres	1 acre	50	21	3
	Totals			8,502	21	405 man-months
March	Sugar beets: Thinning	655 acres	0.5 acre	1,310	22	60
	Spinach: Picking and putting in crates	29 acres	0.4 acres	73	5	15
	Tomatoes: Transplanting plants to beds	9,000,000‡ plants	5,000 plants	1,800	15	120
	Totals			3,183	22	195 man-months
April	Alfalfa: Mowing	2,950 acres ¶	10 acres	295	22	14
	Raking	2,950 acres ¶	20 acres	148	22	7
	Bunching	2,950 acres ¶	40 acres	74	22	4
	Sugar beets: Thinning	655 acres	0.5 acre	1,310	22	60
	Peas: Picking (33 per cent of crop)	40,000 hampers	9 hampers	4,444	11	404 (for 11 days) ¶

Table 3 continued on next page.

Table continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
April (cont'd.)	Tomatoes: Setting plants in field	3,600 acres	0.66 acre	5,400	15	360 (from 15th to 30th)
	Apricots: Thinning	560 acres	0.25 acre	2,240	15	150 (from 15th to 30th)
	Pears: Hoeing and suckering	1,880 acres	2 acres	940	22	43
	Totals			14,851	22	675 man-months
May	Hay: Mowing	13,500 acres	7.5 acres	1,800	23	78
	Raking	13,500 acres	15 acres	900	23	39
	Shocking	15,000 acres	30 acres	500	23	22
	Trimming	15,000 acres	10 acres	1,500	23	65
	Baling	1,330 tons	5 tons in 13-hour day	266	6	45 (from 24th to 31st)
	Sugar beets: Hoeing	970 acres	2 acres	485	23	21
	Cucumbers: Hoeing and thinning	85 acres	0.5 acre	170	12	14 (from 15th to 31st)
	Peas: Picking	80,000 hampers	9 hampers	8,888	12	808 (from 1st to 15th)
	Tomatoes: Set plants in field	3,600 acres	0.67 acre	5,400	15	360 (from 1st to 15th)
	Replanting	7,200 acres	2 acres	3,600	23	155
	Hoeing	2,230 acres	0.67 acres	3,350	23	145
	Strawberries: Picking	55 acres	20 crates = 240 baskets	1,265	23	55**
	Apricots: Thinning	560 acres	0.25 acre	2,240	15	150 (from 1st to 15th)
	Cherries: Picking	425 tons	200 pounds	4,250	12	354 (from 15th to 31st)
	Peaches: Thinning	1,390 acres	1 acre††	1,390	12	116 ††
	Pears: Hoeing and suckering	1,880 acres	2 acres	940	23	40
	Alfalfa: Mowing	2,050 acres	10 acres	205	23	9
	Raking	2,050 acres	20 acres	103	23	5
	Bunching	2,050 acres	40 acres	52	23	3
	Baling, including bucking to press	1,700 tons	5 tons per 13-hour day	340	23	15
	Totals			37,644	23	1,637 man-months

Table 3 continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
June	Alfalfa: Mowing	2,050 acres ¢	10 acres	205	25	9
	Raking	2,050 acres ¢	20 acres	103	25	5
	Bunching	2,050 acres ¢	40 acres	52	25	3
	Baling, including bucking to press	1,700 tons	5 tons per 13-hour day	340	25	14
	Grain (wheat, barley and oats):					
	Harvesting by combine	1,500 acres ¢	4 acres per 8-hour day	375	25	15
	Piling bundles after binder	1,500 acres	10 acres	150	25	6
	Hay, other than alfalfa: Baling	7,980 tons	5 tons per 13-hour day	1,596	25	64
	Cucumbers: Hoeing and thinning	85 acres	0.5 acre	170	12	14 (from 1st to 15th)
	Tomatoes: Hoeing	2,230 acres	0.67 acre	3,350	25	134
	Apricots: Picking	1,500 tons	0.5 ton	3,000	13	230 (from 1st to 15th)
	Picking	4,500 tons	0.5 ton	9,000	13	693 (from 15th to 30th)
	Cutting for drying	440 tons	0.33 ton	1,320	13	102 (from 1st to 15th)
	Cutting for drying	1,320 tons	0.33 ton	3,960	13	305 (from 15th to 30th)
	Other dry yard work	--	--	200	13	15 (from 1st to 15th)
	Other dry yard work	--	--	566	12	47 (from 15th to 30th)
	Cherries: Picking	425 tons	200 pounds	4,250	12	354 (from 1st to 15th)
	Peaches: Thinning (nectarines mainly)	460 acres	1 acre ‡‡	460	12	39 (from 1st to 15th) ‡‡
	Pears: Hoeing and suckering	940 acres	2 acres	470	13	36 (for 13 days)
	Strawberries: Picking	55 acres	20 crates = 240 baskets	1,375	25	55**
	Totals			30,942	25	1,238 man-months

Table 3 continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
July	Alfalfa: Mowing	2,050 acres ϕ	10 acres	205	26	9
	Raking	2,050 acres ϕ	20 acres	103	26	4
	Bunching	2,050 acres ϕ	40 acres	52	26	2
	Baling, including bucking to press	1,700 tons	5 tons per 13-hour day	340	26	14
	Grain (barley, wheat, and oats):					
	Harvesting by combine	5,000 acres ϕ	4 acres	1,250	26	48
	Piling bundles	1,500 acres	10 acres	150	26	6
	Threshing with stationary thresher	1,440 acres ϕ	2 acres	720	26	28
	Hay, other than alfalfa: Baling	7,980 tons	5 tons per 13-hour day	1,596	26	62
	Sugar beets: Topping and loading	3,712 tons	5 tons	742	13	57 (from 15th to 31st)
	Cucumbers: Picking	170 acres	0.67 acre	1,105	13	85 (from 15th to 31st)
	Tomatoes: Hoeing	2,230 acres	0.67 acre	3,350	26	129
	Apples: Picking	55 tons ϕ	2,000 pounds	55	13	5 (from 15th to 31st)
	Apricots: Picking	8,200 tons	0.5 ton	16,400	13	1,261 (from 1st to 15th) ¶¶
	Picking	750 tons	0.5 ton	1,500	13	38 (from 15th to 31st)
	Cutting for drying	2,420 tons	0.33 ton	7,260	13	558 (from 1st to 15th) ¶¶
	Cutting for drying	220 tons	0.33 ton	660	13	51 (from 15th to 31st)
	Other dry-yard work	--	--	1,040	13	80 (from 1st to 15th)
	Other dry-yard work	--	--	94	13	8 (from 15th to 31st)
	Peaches: Picking	880 tons	0.75 ton	1,173	12	98
	Drying	466 tons	1,400 pounds	665	12	56
	Pears: Picking	735 tons	1,200 pounds	1,225	13	95 (from 15th to 31st)
	Totals			39,685	26	1,527 man-months

Table 3 continued on next page.

Table continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
August	Alfalfa: Mowing	2,300 acres ϕ	10 acres	230	25	10
	Raking	2,300 acres ϕ	20 acres	115	25	5
	Bunching	2,300 acres ϕ	40 acres	58	25	3
	Baling	1,700 tons	5 tons per 13-hour day	340	25	14
	Threshing -- 500 acres at 350 pounds per acre	175,000 pounds	575 pounds per 7-hour day	305	19	16 (for 19 days)
	Grain: Harvesting by combine	3,000 acres ϕ	4 acres	750	25	30
	Threshing (stationary)	360 acres ϕ	2 acres	180	15	12 (from 1st to 15th)
	Hay, other than alfalfa: Baling	7,980 tons	5 tons in 13 hours	1,596	25	64
	Sugar beets: Topping and loading	7,735 tons	5 tons	1,547	25	62
	Melons, Honeydew: Picking	180 tons	6 tons	30	6	5 (from 24th to 31st)
	Cucumbers: Picking	170 acres	0.67 acre ϕϕ	2,125	25	85
	Tomatoes: Picking for cannery	2,528 tons	2,500 pounds	2,022	6	337 (from 24th to 31st)
	Almonds: Knocking	1,710 acres	0.5 acre	3,420	25	137
	Hulling by hand	85 tons	275 pounds	618	25	25
	Hulling by machine	171 tons	500 pounds		25	
	Apples: Picking	110 tons ϕ	2,000 pounds	110	25	5
	Grapes: Picking	456 tons	1 ton	456	5	91 (from 25th to 31st)
	Peaches (and nectarines):					
	Picking	2,200 tons	1,500 pounds	2,932	12	245 (from 1st to 15th) ###
	Picking	880 tons	1,500 pounds	1,173	12	98 (from 15th to 31st)
	Cutting for drying - freestones	1,666 tons	1,400 pounds	2,380	12	200 (from 1st to 15th)
	Cutting for drying - freestones	466 tons	1,400 pounds	665	13	51 (from 15th to 31st)
	Other dry yard work (1/6 of cutting labor)	--	--	396	12	33 (from 1st to 15th)
	Other dry yard work (1/6 of cutting labor)	--	--	111	13	9 (from 15th to 31st)

Table 3 continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
August (cont'd.)	Pears: Picking	6,400 tons	1,200 pounds	10,666	25	427
	Cutting for drying	1,360 tons	0.5 ton	2,720	25	109
	Other dry yard work (same amount as cutting)	--	--	2,720	25	109
	Figs, Kadota: Picking	200 acres	1 acre[a]	700	10	70
	Packing (estimating 50 per cent of crop shipped)	100 acres	65 boxes = 520 pounds	280[b]	10	28
	Prunes: Picking up	200 tons	1,400 pounds	286	10	29 (from 20th to 31st)
	Totals			38,931	25	1,558 man-months
September	Alfalfa: Mowing	2,300 acres[c]	10 acres	230	25	10
	Raking	2,300 acres[c]	20 acres	115	25	5
	Bunching	2,300 acres[c]	40 acres	58	25	3
	Baling, including bucking to press	1,700 tons	5 tons per 13-hour day	340	25	14
	Threshing - 500 acres at 350 pounds per acre	175,000 pounds	575 pounds per 7-hour day	305	19	16 (from 1st to 21st)
	Grain: Harvesting by combine	500 acres[c]	4 acres	125	10	13 (from 1st to 10th)
	Hay, other than alfalfa: Baling	1,330 tons	5 tons per 13-hour day	266	12	22 (from 1st to 15th)
	Sugar beets: Topping and loading	7,735 tons	5 tons	1,547	25	62
	Melons, Honeydews: Picking	330 tons	6 tons	55	6	10 (for 6 days)
	Cucumbers: Picking	170 acres	0.67 acre[c,c]	1,020	12	85 (from 1st to 15th)
	Lettuce: Thinning	25 acres	0.5 acre	50	5	10 (for 5 days)
	Tomatoes: Picking for cannery	10,112 tons	2,500 pounds	8,090	25	323[c]
	Picking for market	153 tons	1,200 pounds	255	10	25 (from 15th to 30th)
	Almonds: Knocking	2,250 acres	0.5 acre	4,500	25	180
	Hulling by hand	112 tons	275 pounds	814	25	33
	Hulling by machine	225 tons	500 pounds			
	Apples: Picking	220 tons[c]	2,000 pounds	220	25	9
	Figs, Kadota: Picking	200 acres	1 acre[a]	1,750	25	70
	Packing (on about half of crop not sent to cannery)	100 acres	65 boxes average 8 pounds	700[b]	25	28

Table 3 continued on next page.

Table continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
September (cont'd.)	Grapes: Picking	4,628 tons	1 ton	4,628	25	185
	Peaches (and nectarines): Picking	880 tons	1 ton	880	12	74 (from 1st to 15th)
	Cutting for drying: clingstones	108 tons	500 pounds	432	12	36 (from 1st to 15th)
	Cutting for drying: freestones	233 tons	1,400 pounds	333	12	20 (from 1st to 15th)
	Other dry yard work	--	--	250	25	10
	Pears: Picking	220 tons	1,200 pounds	366	5	73 (from 1st to 6th)
	Cutting for drying (25 per cent of tonnage dried)	455 tons	0.5 ton	910	12	76 (from 1st to 15th)
	Other dry yard work	--	--	910	12	76 (from 1st to 15th)
	Prunes: Picking up	1,600 tons	1,400 pounds	2,285	25	91
	Walnuts: Knocking and picking up	500 tons	200 pounds	5,000	12	417 (from 15th to 30th)
	Totals			36,434	25	1,458 man-months
October	Alfalfa: Mowing	2,050 acres	10 acres	205	24	9
	Raking	2,050 acres	20 acres	103	24	5
	Bunching	2,050 acres	40 acres	52	24	3
	Baling	1,700 tons	5 tons	340	24	14
	Sugar beets: Topping and loading	3,700 tons	5 tons	740	12	62
	Melons, Honeydew: Picking	960 tons	6 tons	160	8	20 (for 8 days)
	Lettuce: Thinning	25 acres	0.5 acre	50	5	10 (for 5 days)
	Hoeing	25 acres	1 acre	25	5	5 (for 5 days)
	Tomatoes: Picking for cannery	12,640 tons	2,500 pounds	10,112	24	421 [d]
	Picking for market	4,340 tons	1,200 pounds	7,233	24	302 [e]
	Almonds: Knocking	540 acres	0.5 acre	1,080	24	45
	Hulling by hand	27 tons	275 pounds	197	24	9
	Hulling by machine	54 tons	500 pounds			
	Apples: Picking	165 tons	2,000 pounds	165	24	7
	Figs, Kadota: Picking	200 acres	1 acre [a]	1,680	24	70
	Packing (on about half of crop)	100 acres	65 boxes average 8 pounds	672 [b]	24	28

Table 3 continued on next page.

Table continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
October (cont'd.)	Grapes: Picking	3,032 tons§	1 ton	3,032	12	253 (from 1st to 15th)
	Prunes: Picking up	200 tons	1,400 pounds	286	12	24 (from 1st to 15th)
	Walnuts: Knocking and picking up	2,000 tons	200 pounds	20,000	24	833
	Totals			46,132	24	1,922 man-months
November	Melons, Honeydew: Picking	30 tons	6 tons	5	1	5 (for 1 day)
	Lettuce: Hoeing	25 acres	1 acre	25	5	5 (for 5 days)
	Cutting	4,480 crates	30 crates	150	13	12 (for 13 days)
	Tomatoes: Picking for market	600 tons	1,200 pounds	1,000	10	100 (from 1st to 10th)
	Cutting vines (by hand)	2,700 acres	5 acres	540	23	20
	Apricots: Pruning	1,800 acres	0.25 acre	7,200	23	313
	Brush disposal	1,800 acres	2 acres	900	23	39
	Peaches and nectarines: Pruning	620 acres	0.25 acre	2,480	23	108
	Brush disposal	620 acres	3 acres	207	23	9
	Pears: Pruning	1,175 acres	0.25 acre	4,700	23	204
	Brush disposal	1,175 acres	3 acres	392	23	17
	Prunes: Pruning	450 acres	0.25 acre	1,800	23	78
	Brush disposal	450 acres	3 acres	150	23	7
	Totals			19,549	23	850 man-months
December	Lettuce: Cutting	2,570 crates	30 crates	86	9	10 (for 10 days)
	Tomatoes: Cutting vines	900 acres	5 acres	180	18	10
	Apricots: Pruning	1,800 acres	0.25 acre	7,200	18	400
	Brush disposal	1,800 acres	2 acres	900	18	50
	Peaches and nectarines: Pruning	620 acres	0.25 acre	2,480	18	138
	Brush disposal	620 acres	3 acres	207	18	12
	Pears: Pruning	1,175 acres	0.25 acre	4,700	18	261
	Brush disposal	1,175 acres	3 acres	392	18	22
	Prunes: Pruning	450 acres	0.25 acre	1,800	18	100
	Brush disposal	450 acres	3 acres	150	18	9
	Totals			18,095	18	1,005 man-months

* Monthly basis unless otherwise noted.

† Fig brush cannot be burned when green; it must be hauled out.

Footnotes continued on next page.

Footnotes continued.

‡ Allowing 25 per cent for replants.

§ Estimated portion of job done by seasonal workers.

¶ About one man per acre needed to harvest peas in this district at peak time.

‖ Very little apricot thinning in 1935.

** About one seasonal worker per acre needed during May and June for strawberry picking.

†† Peach thinning in 1935 was about 30 per cent of normal amount.

‡‡ Thinning on peaches and nectarines was about 30 per cent of normal in 1935.

§§ Cucumbers are picked continuously, requiring about one man for each two acres.

¶¶ There were probably 3,500 pickers and 2,000 cutters employed at peak of apricot harvest in 1935. This was abnormally high, because fruit ripened in a shorter period than usual.

‖‖ There probably were 400 or more peach pickers at peak period.

a/ Picking figs is a continuous operation. One-third of acreage is picked each day, requiring one man to three acres full time.

b/ Packing figs takes four-fifths as much labor as picking.

c/ Need for tomato pickers increased toward end of month to about 800 at the peak.

d/ During peak of picking in early October, probably 800 men were needed for harvesting cannery tomatoes.

e/ During peak of picking in early October, probably 600 men were needed for harvesting market tomatoes.

TABLE 4

Summary of Seasonal Labor Needs by Months
Contra Costa County
1935

Month	Required man-days of seasonal labor	Available work days	Required man-months of seasonal labor
January	14,244	19	750
February	8,502	21	405
March	3,183	22	145
April	14,851*	22	675*
May	37,644*	23	1,637*
June	30,942	25	1,238
July	39,685	26	1,527
August	38,931	25	1,558
September	36,434	25	1,458
October	46,132	24	1,922
November	19,549	23	850
December	18,095	18	1,005
Total	308,192	--	13,170

* On years when "set" of apricots is heavy, the total labor required in April and May will be increased by about 6,750 man-days in each of those months for thinning.

TABLE 4

Summary of Seasonal Labor Needs by Months
Contra Costa County
1958

Month	Required man-days of seasonal labor	Available work days	Required man-months of seasonal labor
January	14,244	19	750
February	8,602	21	408
March	3,185	22	145
April	14,881*	22	676*
May	37,864*	23	1,647*
June	30,942	26	1,258
July	39,885	26	1,527
August	39,931	26	1,528
September	36,454	26	1,402
October	46,132	24	1,922
November	19,649	23	850
December	16,056	18	1,008
Total	308,192	--	12,170

* On years when "set" of apricots is heavy, the total labor required in April and May will be increased by about 6,750 man-days in each of those months for thinning.